weapons Gen'l

June 14, 1960

Report on Crossbow

1. Summary and Recommendations

The crossbow tested provides a means of killing small game probably up to small deer size, it is easy to use and has a unique cocking mechanism which provides a big advantage over other known crossbows. Some design changes are recommended, foremost is the shape of the main spring which causes failure at the sharp bend. Some energy is probably lost due to the divergent path of the cable and arrow groove. In summary this crossbow is regarded as a handy, light, easily carried, effective, reasonably quiet weapon and should be shown to those interested in survival weapons especially Air Force personnel.

2. The crossbow weighs two pounds, ten ounces and was tested with arrows weighing from ½ oz. to 1½ oz. and measuring 12-3/4" long. A preliminary test was set up to familiarize test personnel with the weapon; its range, penetrative power, and accuracy. A six by six foot target was made of 7/8" pine, and the crossbow fired with various arrow weights and two types of arrow heads from various ranges. The maximum range was found to be approximately 120 yards, and at 70 yards considerable confidence was generated in the ease of aiming and accuracy. Hunting arrow heads on wooden arrows cut down in size were tried against the target but arrow instability prevented a realistic target penetration determination. Heavier aluminum arrows with pointed tips worked much better than wooden arrows both distance and penetration-wise.

3. Preliminary testing used up several arrows which were easily lost and the wire cable became frayed and required replacement. The unit was sent to the shop for these replacements and to determine the cocking force. At the shop the main spring broke when being test fired. The fracture occurred at the sharp bend where the spring joins the body. A new spring was fabricated and it also broke in the same place. Third and fourth springs were made and the remaining original spring kept for a spare. The crossbow was not fired using these springs.

4. Redesign recommendations include the following:

(a) Eliminate the sharp bend in the spring by making the spring one piece instead of two.

(b) Shape the spring so that the cable travel when firing is exactly parallel with the arrow groove.

25X1
25X1

(c) Fabricate some means of retaining the wire cable at the spring ends. The cable comes off or twists after each firing.

5. A complete test program was planned but was not conducted due to spring failures enumerated above. Interest was expressed in the device by people interested in survival weapons and should the owner care to reloan the crossbow at some future time such a test would be run. Should the unit be redesigned and a quantity manufactured a small quantity (two or three) might be purchased. Other means of government utilization of this crossbow warrant discussion.